

## **Taxonomic Study of Four Unrecorded species of Pyraustinae (Lepidoptera, Crambidae) from Korea**

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**Abstract** Four species of Pyraustinae, *Agrotera posticalis* Wileman, *Udea stigmatalis* (Wileman), *Diathraustodes amoenialis* (Christoph), and *Pygospila tyres* (Cramer), are recorded for the first time from Korea. Among them, the genitalia of *U. stigmatalis* are described and figured for the first time. *Diathraustodes* and *Pygospila* are newly recorded genera to the Korean fauna. The adults and both sexes of genitalia are briefly described and illustrated.

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**Key words** Taxonomy, Lepidoptera, Crambidae, Pyraustinae, new record, Korea

### **INTRODUCTION**

The subfamily Pyraustinae, small to large size moths, is one of the largest groups of the family Crambidae and has worldwide distribution except for the Antarctic continent, comprising about 7,400 described species (Heppner, 1991). The first reference to the Korean fauna of Pyraustinae was made by Leech (1889), based on three new species, *Glyphodes bipunctallis*, *Polythlipta liguidalis*, and *Coptobasis segnalis*. Thence, the Korean subfamily was studied by Okamoto (1924), Shibuya (1928), Maruda (1929), Nagayama and Okamoto (1940), Park (1976, 1983, 1993), and Shin and Kim (1995). Quite recently, Bae (in press) published a catalogue of the Pyraloidea of Korea in the "Pyraloidea: Pyraustinae and Pyralinae Economic Insects of Korea 9" (Insecta Koreana Suppl. 16). In the catalogue, a total of 192 species of 83 genera is enumerated including the synonyms, diagnosis, host plants, general biology, and local distributions of the species.

In the present study, four species, *Agrotera posticalis* Wileman, *Udea stigmatalis* (Wileman), *Diathraustodes amoenialis* (Christoph), and *Pygospila tyres* (Cramer) of Pyraustinae, are recorded for the first time from Korea, and the genitalia of *U. stigmatalis* is described and figured for the first time.

Abbreviations for the collection, provincial names, and other are as follows: UIB- Department of Biology, University of Incheon, Incheon; GW- Gangweon; GG- Gyeonggi; CB- Chungbug; GB- Gyeongbug; GN- Gyeongnam; JN- Jeonnam; TL- type locality; TS- type species.

## SYSTEMATIC ACCOUNTS

### *Agrotera* Schrank, 1802

*Agrotera* Schrank, 1802, Fauna Boica 2(2): 163. TS: *Phaelaena nemoralis* Scopoli, 1763, by monotypy.

*Tetracona* Meyrick, 1884. TS: *Aediodes amathealis* Walker, 1859, by monotypy.

*Sagariphora* Meyrick, 1894. TS: *Sagariphora heliochlaena* Meyrick, 1894, by monotypy.

### *Agrotera posticalis* Wileman, 1911

(Figs 1, 5, 7)

*Agrotera posticalis* Wileman, 1911, Trans. ent. Soc. Lond. 1911: 374; Inoue, 1980: 91; Inoue, 1982, 1: 332, 2: 231, pl. 38: 65. TL: Japan.

*Agrotera* sp.: Bae, 2001. (in press)

**Diagnosis.** Wingspan, 11–18 mm (Fig. 1). This species is very similar to *A. nemoralis* in the superficial appearance, but can be distinguished from the latter in having straight median line and pale yellowish markings on basal area of forewing.

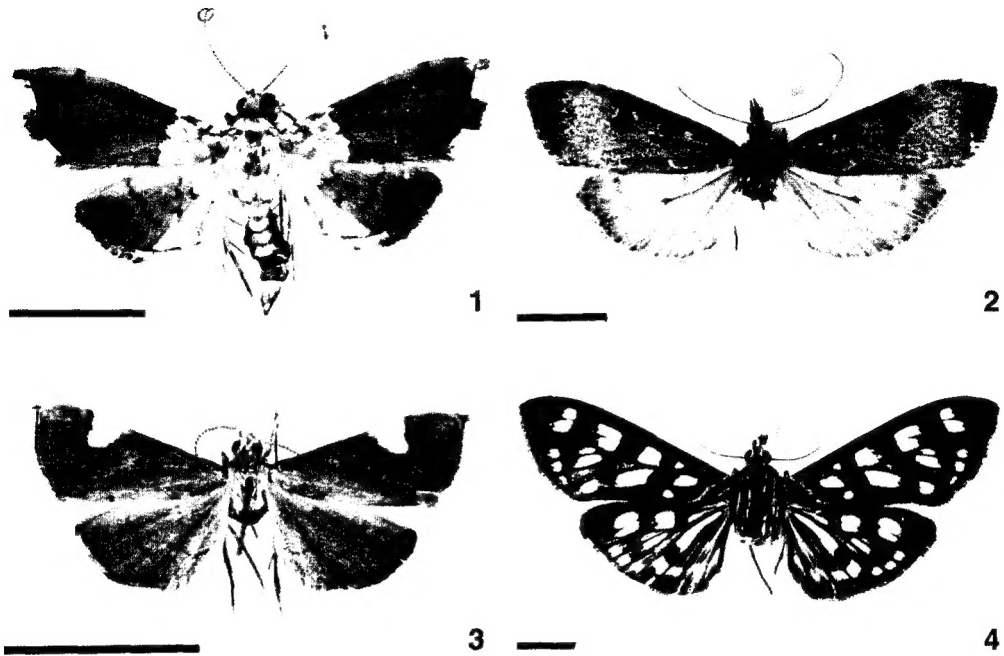
**Male genitalia** (Fig. 5). Uncus small, triangular, apically pointed. Valva elliptical, apically pointed; harpe well developed, scythe-shaped. Vinculum very long (as long as valva), scoop-shaped, with rounded posterior margin. Aedeagus wrinkled membranous, about as long as valva, with numerous minute setae; cornutus consisting of one stout thorn-like process.

**Female genitalia** (Fig. 7). Ostium bursae and ductus bursae not separated; ductus seminalis originating from the posterior part of corpus bursae; corpus bursae long, wrinkled membranous; signa with numerous serrates.

**Material examined.** GW– 1 ♂, Mt. Daedeoksan, 11 VII 1997 (Y.S. Bae & B.W. Lee); 1 ♀, Mt. Jeombongsan, 12 VIII 1997 (Paek, Lee, Jang, Choi & Kim); 3 ♀, Mt. Weolaksan, 9 VIII 1997 (Y.S. Bae & N.H. Ahn). GG– 1 ♂, Is. Daebu, 28 VI 1997 (M.K. Paek); 2 ♂, Mt. Cheolmasan, 14 VI 1996 (Y.S. Bae & D.S. Yang); 1 ♂, Mt. Cheonggyesan, Gwacheon, 25 VII 1996 (Bae, Paek, Lee & Ahn), 1 ♀, same locality, 26 VII 1997 (Jeon, Lee, Jang & Gu); 1 ♂, Mt. Soyosan, 14 IX 1996 (Y.H. Jeong), gen. sl. no. UIB-3839 (♂), 1 ♂, same locality, 7 VII 1996 (Bae, Paek, Lee & Ahn); 1 ♂, Lake Mulwang, Shiheung, 30 VIII 1996 (M.K. Paek), 1 ♂, Temp. Yongkung, Is. Yeongjong, 21 VII 1995 (Y.S. Bae & M.K. Paek). CB– 1 ♂, Mt. Gayasan, 24 VII 1997 (B.W. Lee & N.H. Ahn); 1 ♂, Chupungryeong, 30 VIII 1996 (M.K. Paek). CN– 1 ♀, Mt. Oseosan, 6 VIII 1999 (Bae, Lee & Kim), gen. sl. no. UIB-3837 (♀). GN– 1 ♀, Swamp. Upo, Changnyeong, 28 VII 1997 (M.K. Paek). JN– 1 ♂, 2 ♀, Jungsan-li, Mt. Jirisan, 20 VIII 1996 (Bae, Paek & Lee), gen. sl. no. UIB-3841 (♂). –coll. UIB.

**Distribution.** Korea (GW, GG, CB, CN, GN, JN) and Japan (Honshu, Shikoku, Kyushu, Tsushima, Yakushima)

**Remarks.** The genus *Agrotera* is widely distributed in the Palaearctic, Indo-Australian, African, and Madagascari regions, comprising about 30 species. The adults of member are very similar to each other, and needs a further study for the Korean species.



**Figs 1-4.** Adults: 1, *Agrotera posticalis* Wileman; 2, *Udea stigmatalis* (Wileman); 3, *Diathraustodes amoenalis* (Christoph); 4, *Pygospila tyres* (Cramer). (Scales: 5.0 mm)

### **Udea Guenée, 1845**

*Udea* Guenée, 1845, in Duponchel, Cat. méth. Lépid. Eur.: 209. TS: *Pyalis ferrugalis* Hübner, 1796, by monotypy.

*Stantira* Walker, 1863. TS: *Stantira variegata* Walker, 1863, by monotypy.

*Melanomecyna* Butler, 1883. TS: *Melanomecyna stellata* Butler, 1883, by subsequent designation of Fletcher and Nye, 1984: 89.

*Mnesictena* Meyrick, 1884. TS: *Mnesictena marmarina* Meyrick, 1884, by subsequent designation of Hampson, 1899: 231.

*Protocolletis* Meyrick, 1888. TS: *Scopula constricta* Butler, 1882, by monotypy.

*Protaulacistis* Meyrick, 1899. TS: *Protaulacistis cataphaea* Meyrick, 1899, by monotypy.

*Notophytis* Meyrick, 1932. TS: *Pyrausta bryochloris* Meyrick, 1899, by original designation and monotypy.

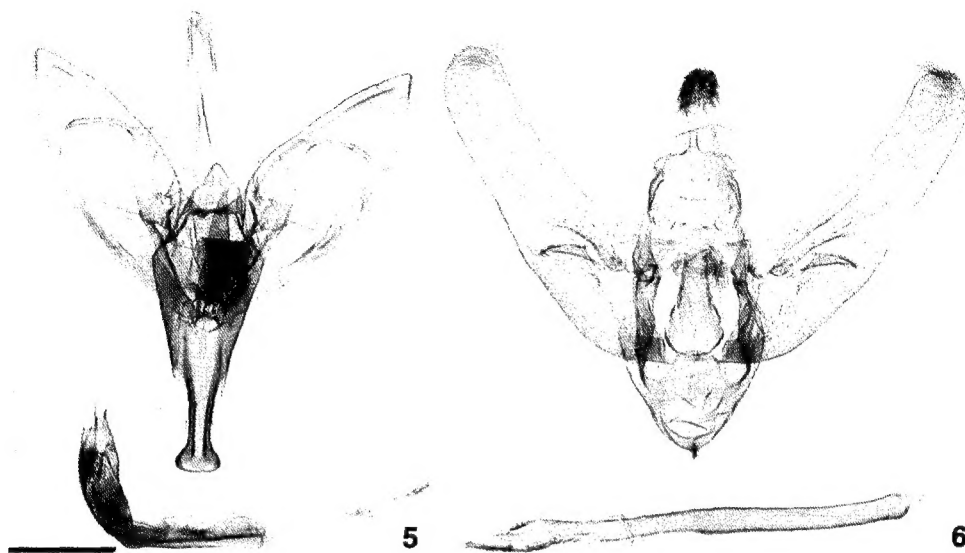
### ***Udea stigmatalis* (Wileman, 1911)**

(Figs 2, 6, 8)

*Pionea stigmatalis* Wileman, Trans. Ent. Soc. Lond., 1911: 387. TL: Japan.

*Udea scoparialis* nec Hampson: Inoue, 1959, 1: 255, pl. 172, fig. 27.

*Udea stigmatalis*: Inoue, 1980: 92; Inoue, 1982, 1: 364, 2: 240, 43: 37.



**Figs 5-6.** Male genitalia: 5, *Agroteta posticalis* Wileman; 6, *Udea stigmatalis* (Wileman). (Scale: 0.5 mm)

**Diagnosis.** Wingspan, 25–27 mm (Fig. 2). This species is similar to *Udea orbicentralis* (Christoph) in the superficial appearance, but can be separated from the latter by the acute apex on the forewing and the distinct median vein of the hindwing.

**Male genitalia** (Fig. 6). Uncus mushroom-like, distally rounded, with numerous setae near apex; juxta large, sclerotized. Valva simple, smoothly rounded at apex; harpe horn-shaped. Aedeagus slender, about 1.3 times as long as valva, with pointed lobe at apex; cornuti consisting of about 25 minute sclerites.

**Female genitalia** (Fig. 8). Ostium bursae sclerotized, narrow cup-shaped; ductus bursae slender, with sclerotized ring near junction of corpus bursae; ductus seminalis originating from the posterior part of ductus bursae; corpus bursae membranous; signum rhomboidal, with minute serrates.

**Material examined.** GW– 6 ♂, 2 ♀, Mt. Hambaeksan, Taebaek, 13 VI 1999 (Bae, Lee & Ahn), gen. sl. no. UIB– 3829 (♀), 3833 (♂). –coll. UIB.

**Distribution.** Korea (GW) and Japan (Hokkaido, Honshu).

**Remarks.** This species was originally described based on one male specimen collected in Japan. The both sexes of genitalia, hitherto unknown, are described and figured for the first time. The genus *Udea* is known with 29 species in Europe, 25 species in Russia, and 53 species in the Neotropical region.

### ***Diathraustodes* Hampson, 1896**

*Diathraustodes* Hampson, 1896, Fauna Br. India (Moths) 4: 189 (key), 223. TS: *Diathraustodes leucotrigona* Hampson, 1896, by original designation and monotypy.

***Diathraustodes amoenialis* (Christoph, 1881)**

(Figs 3, 9)

*Amaurophanes amoenialis* Christoph, 1881, Bull. Soc. imp. Nat. Mosou 56 (1): 30. TL: Russia (Amur).*Diathraustodes fulvovusus* (nec Hampson): Inoue, 1982, 1: 329, 2: 229, pl. 38: 44.*Diathraustodes amoenialis*: Inoue, 1988: 93, fig. 5d.

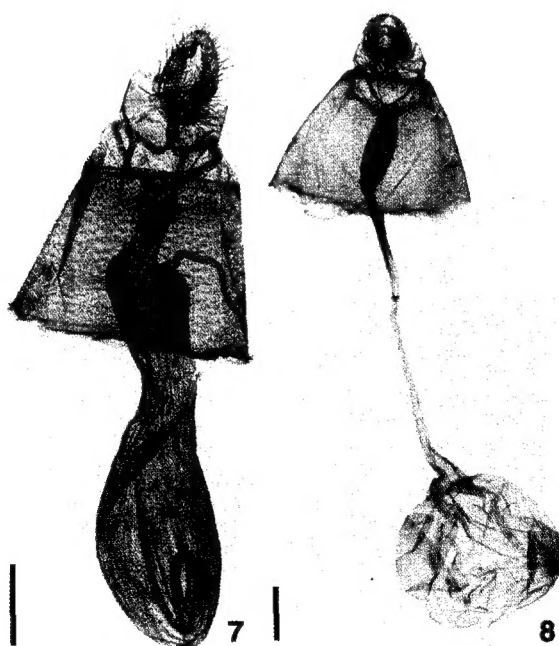
**Diagnosis.** Wingspan, 11 mm (Fig. 3). This species is quite similar to Indian species *D. fulvofusus*, but can be distinguished from the latter by the shape of the white costal marking of the forewing, the posterior margin of the marking is nearly flat or slightly rounded (Inoue, 1988).

**Female genitalia** (Fig. 9). Ostium bursae broad cup-shaped; ductus bursae long, about twice as long as corpus bursae; ductus seminalis originating from posterior part of ostium bursae; corpus bursae membranous; signum absent.

**Material examined.** GB- 1 ♀, Mt. Sobaeksan, Yeongpung, 17 VII 1998 (Bae, Lee, & Song), gen. sl. no. UIB-3642 (♀). -coll. UIB.

**Distribution.** Korea (GB), Japan (Honshu), China, and Russia (Amur).

**Remarks.** Only one female specimen was collected at Mt. Sobaek in the central part of Korea. The genus *Diathraustodes* is containing one species in Korea and Japan.

***Pygospila* Guenée, 1854***Pygospila* Guenée, 1854, in Boisduval & Guenée, Hist. nat. Insectes (Spec. gén. Lépid.) 8: 312. TS:

**Figs 7-8.** Female genitalia: 7, *Agrotera posticalis* Wileman; 8, *Udea stigmatalis* (Wileman). (Scales: 0.5 mm)

*Phalaena tyres* Cramer, 1780, by subsequent designation of Hampson, 1896: 361.  
*Lomotropa* Lederer, 1863. TS: *Pygospila costiflexalis* Guenée, 1854, by monotypy.  
*Telespasta* Swinhoe, 1906. TS: *Pygospila cuprealis* Swinhoe, 1892, by original designation and monotypy.

### ***Pygospila tyres* (Cramer, 1789)**

(Figs 4, 10)

*Phalaena tyres* Cramer, 1789, Uitlandsche Kapellen 3: pl. 263: C. TL: India.

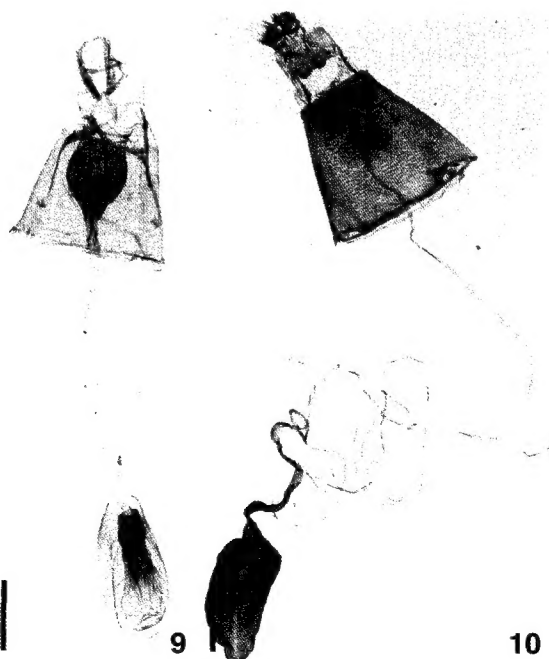
*Pygospila tyresalis* Guenée, 1854, in Boisduval & Guenée, Hist. nat. Insectes (Lepid.) 8: 312, 340. TL: India, Bangladesh.

*Pygospila tyres*: Inoue, 1965: 179; Inoue, 1982, 1: 348, 2: 235, pl. 41: 18; Robinson, *et al.* 1995: 172; Yamanaka, 1995: 189; 1998: 109, pl. 126, fig. 14.

**Diagnosis.** Wingspan, 43 mm (Fig. 4). This species can be distinguished from the allies by the following characters: forewing and hindwing ground colour blackish blue, virescent metallic lustrous, the forewing with 15 semitransparent white markings, the hindwing with 11–13 white markings.

Female genitalia (Fig. 10). Ostium bursae sclerotized, funnel-shaped; ductus bursae very long, about four times as long as the length of abdomen (about 40 mm); corpus bursae rather sclerotized, with irregularly minute serrates; signum rudiment.

**Material examined.** GG– 1 ♀, Mt. Hwaaksan, 18 VIII 1998 (Paek, Ahn & Kim), gen. sl. no. UIB–



**Figs 9-10.** Female genitalia: 9, *Diathraustodes amoenalis* (Christoph); 10, *Pygospila tyres* (Cramer). (Scales: 0.5 mm)

3813 (♀). -coll. UIB.

*Distribution.* Korea (GG), Japan (Shikoku, Kyushu, Tsushima, Yakushima), China, Taiwan, and Nepal.

*Remarks.* Only one female specimen was collected at Mt. Hwaaksan, the Northern part of Korea. The genus *Pygospila* is distributed in the Indo-Australian, African, and Palearctic regions, with nine species.

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## 韓國産 들명나방亞科(나비目, 포충나방科)의 4未紀錄種

金 龍 基 · 裴 良 燮

인천대학교 생물학과

포충나방과(나비목)에 속하는 들명나방아과의 4種, *Agrotera posticalis* Wileman, *Udea stigmatalis* (Wileman), *Diathraustodes amoenialis* (Christoph), *Pygospila tyres* (Cramer)을 우리 나라에서 처음으로 보고 하며, 이중에서 *Diathraustodes*屬과 *Pygospila*屬은 우리 나라에서 처음 기록한다. 이들의 분류학적 특징을 간략히 再起載하고, 채집된 성충 및 암·수 生殖器를 도해하였다. 특히 *Udea stigmatalis*는 생식기의 특징을 최초로 기재하며 도해하였다.

검색어 : 나비목, 포충나방과, 들명나방아과, 분류, 한국

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